

FOJS 18.150
09/751,974In the Claims:

Please amend the claims as follows:

1. (previously amended) A mobile-service switching center in a switching center system including (a1) a plurality of first multicall communication mode supporting terminals which are capable of supporting a plurality of calls at a time and (a2) a plurality of single-call communication mode supporting terminals which are capable of supporting only a single call at a time, the mobile-service switching center comprising:

determining section for determining whether a call request is a call from the first multicall communication mode supporting terminal or from the single-call communication mode supporting terminal;

event detecting section for detecting an event caused by a handover occurrence or fluctuation of a congested state of a network, by a reception of a handover requesting signal or an increase of a load representing the congested state of the network; and

call-number changing section for increasing or decreasing to change the number of continuing calls of the first multicall communication mode supporting terminal which is determined by the determining section, when an event is detected by the event detecting section detects any event during the communication.

2. (previously amended) A mobile-service switching center comprising:

determining section for determining whether a call request is a call from a first multicall communication mode supporting terminal, which is capable of supporting a plurality of calls at a time or from a single-call communication mode supporting terminal, which is capable of supporting only a single call at a time;

event detecting section for detecting an event caused by a handover occurrence or

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fluctuation of a congested state; and

call-number changing section capable of changing the number of continuing calls of the first multicall communication mode supporting terminal which is determined by the determining section, when an event is detected by the event detecting section detects any event during the communication,

wherein the call-number changing section comprises:

special message notifying section capable of transmitting a special message having inserted therein the number of calls changing information regarding the increases and decreases of the plurality of calls, to a base station controller for controlling a base station and the first multicall communication mode supporting terminal;

reply receiving section for receiving a reply regarding a desired call to continue which is selected by the first multicall communication mode supporting terminal from the plurality of calls which are notified by the special message notifying section; and

handover rearranging section for rearranging the connection status in such a manner that the desired call to continue which is designated in the reply received by the reply receiving section is maintained and an undesired call which is not selected by the first multicall communication mode supporting terminal is disconnected.

3. (previously amended) A mobile-service switching center apparatus comprising:

determining section for determining whether a call request is a call from a first multicall communication mode supporting terminal, which is capable of supporting a plurality of calls at a time or from a single-call communication mode supporting terminal, which is capable of supporting only a single call at a time;

event detecting section for detecting an event caused by a handover occurrence or

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fluctuation of a congested state; and

call-number changing section capable of changing the number of continuing calls of the first multicall communication mode supporting terminal which is determined by the determining section, when an event is detected by the event detecting section detects any event during the communication,

wherein the call-number changing section comprises:

call selecting section for selecting a call to be disconnected from the plurality of calls under communication based on a predetermined condition;

call disconnect notifying section for transmitting a call disconnect message to the first multicall communication mode supporting terminal corresponding to the disconnected call selected by the call selecting section;

reply receiving section capable of receiving a reply regarding a desired call to continue selected by the first multicall communication mode supporting terminal which received the disconnect message from the call disconnect notifying section; and

handover rearranging section for maintaining connection corresponding to the desired call to continue which is designated by the reply received by the reply receiving section and disconnect an undesired call to continue selected from the plurality of calls by the first multicall communication mode supporting terminal.

4. (original) A mobile-service switching center according to claim 3, wherein the call selecting section comprises:

priority data holding section for giving priority data to the calls under communication and holding the priority data; and

output section for outputting the data designating the call to be disconnected based on the

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priority data held by the priority data holding section when connection service restriction deriving from the event is relaxed.

5. (original) A mobile-service switching center according to claim 3, wherein the call selecting section is arranged to disconnect based on information regarding priority of call contained in a predetermined region of the call disconnect message.

6. (original) A mobile-service switching center according to claim 3, wherein the call selecting section is arranged to select a call based on information contained in the subscriber's data which is sent from a home location register to a visitor location register.

7. (currently amended) A mobile-service switching center according to claim 3, wherein the call selecting section is arranged to disconnect based on a selecting algorithm algorithm prepared for each subscriber.

8. (currently amended) A mobile-service switching center apparatus according to claim 7, wherein the selecting ~~algorithm~~ algorithm is arranged based on the priority which is determined in accordance with the connection sequence of a plurality of calls under communication.

9. (currently amended) A mobile-service switching center apparatus according to claim 7, wherein the selecting ~~algorithm~~ algorithm is arranged based on quality of service data indicative of the grade of a transmitted signal, and the call selecting section selects a call to continue in accordance with the selecting ~~algorithm~~ algorithm.

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10. (original) A mobile-service switching center apparatus according to claim 2, wherein the call-number changing information is arranged to make the first multicall communication mode supporting terminal emanate an alarming sound changing step by step so as to correspond to the status taken by the call-number changing information.

Claims 11-12 (cancelled)

13. (previously amended) A method of changing the number of calls in a multicall communication mode for use in a switching center system which comprises a first multicall communication mode supporting terminal for transmitting and receiving a radio signal, a base station controller for controlling a base station, and a mobile-service switching center for transmitting and receiving information regarding a plurality of calls so that a communication status is settled between the first multicall communication mode supporting terminal and the base station controller, the method comprising:

a step of detecting an event caused by an occurrence of handover and a fluctuation in congesting state of a network;

a step of notifying a special message having inserted therein call-number changing information regarding the increases and decreases of call-numbers to a switching center as a connection destination connected by the handover when the event is detected at the event detecting step;

a step of receiving a reply regarding a desired call to continue selected by the first multicall communication mode supporting terminal from the plurality of calls notified by the special message created at the special message notifying step; and

a step of rearranging the handover in such a manner that the desired call to continue

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designated by the reply received at the reply receiving step is maintained in connection and an undesired call to continue, the undesired call is not selected from the plurality of calls by the first multicall communication mode supporting terminal and is disconnected.

14. (original) A method of changing the number of calls in a multicall communication mode according to claim 13, wherein the special message notifying step is arranged such that if the mobile-service switching center receives a call request sent from a second multicall communication mode supporting terminal other than the first multicall communication mode supporting terminal, then the mobile-service switching center inserts call-number decreasing information for decreasing the number of calls into the special message, and

the handover rearranging step is arranged such that the mobile-service switching center transmits a reply regarding the call request by using a communication line which becomes vacant by disconnecting the undesired call to continue designated at the special message notifying step.

15. (original) A method of changing the number of calls in a multicall communication mode according to claim 13, wherein the special message notifying step is arranged to comprise:

a step of notifying the base station controller of information regarding the base station controller as a connection destination to be connected by the handover to the base station controller upon transmitting a special message;

a step of receiving call-number changing information regarding the number of calls allowable to the call-number changing information transmitted from the base station controller as a connection destination notified at the base station controller notifying step; and

a step of transmitting the call-number changing information which is received at the call-number changing information receiving step, to the first multicall mode supporting terminal.

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16. (original) A method of changing the number of calls in a multicall communication mode for use in a switching system which comprises a first multicall communication mode supporting terminal for transmitting and receiving a radio signal, a base station controller for controlling a base station, and a mobile-service switching center for transmitting and receiving information regarding a plurality of calls so that a communication status is settled between the first multicall communication mode supporting terminal and the base station controller, the method comprising:

a first transmitting step for transmitting a handover request from the mobile-service switching center to a mobile-service switching center as a connection destination to be connected by the handover;

a second transmitting step for transmitting a message containing data indicative of a number of calls allowable to continue based on the capacity and the congesting state of the mobile-service switching center as a connection destination, the message is transmitted from the mobile-service switching center as a connection destination at the first transmitting step; and

a call-number notifying step for transmitting a message indicative of an additional number of calls allowable to continue from the mobile-service switching center to the first multicall communication mode supporting terminal, if the number of calls, the number is contained in the message sent at the second transmitting step, allowable to continue is larger than the current number of calls supported by the first multicall communication mode supporting terminal.

17. (original) A method of changing the number of calls in a multicall communication mode according to claim 16, wherein the call-number notifying step is arranged such that the mobile-

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service switching center further transmits a command message to the first multicall communication mode supporting terminal which is obliged to decrease the number of calls to continue so that a connection status is rearranged in accordance with the decreased number of calls allowable to continue.

18. (original) A method of changing the number of calls in a multicall communication mode according to claim 16, wherein the call-number notifying step is arranged such that the mobile-service switching center notifies the first multicall communication mode supporting terminal that the communication channel cannot be changed while maintaining communication status upon the event deriving from the occurrence of the handover and fluctuation of the network congestion state.

19. (previously presented) A switching center system including (a1) a plurality of first multicall communication mode supporting terminals, which are capable of supporting a plurality of calls at a time and (a2) a plurality of single-call communication mode supporting terminals, which are capable of supporting only a single call at a time, the switching center system comprising:

a determining section for determining whether a call request is a call from the first multicall communication mode supporting terminal or from the single-call communication mode supporting terminal;

an event detecting section for detecting an event caused by a handover occurrence or fluctuation of a congested state of a network, by a reception of a handover request signal or an increase of a load representing the congested state of the network; and

a call-number changing section for increasing or decreasing to change the number of continuing calls of the first multicall communication mode supporting terminal, which is

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determined by the determining section, when an event is detected by the event detecting section during the communication.

20. (previously presented) A switching center system comprising:

a determining section for determining whether a call request is a call from a first multicall communication mode supporting terminal, which is capable of supporting a plurality of calls at a time or from a single-call communication mode supporting terminal, which is capable of supporting only a single call at a time;

an event detecting section for detecting an event caused by a handover occurrence or fluctuation of a congested state; and

a call-number changing section capable of changing the number of continuing calls of the first multicall communication mode supporting terminal which is determined by the determining section, when an event is detected by the event detecting section during the communication,

wherein the call-number changing section comprises:

a special message notifying section capable of transmitting a special message having inserted therein the number of calls changing information regarding the increases and decreases of the plurality of calls, to a base station controller for controlling a base station and the first multicall communication mode supporting terminal;

a reply receiving section for receiving a reply regarding a desired call to continue which is selected by the first multicall communication mode supporting terminal from the plurality of calls which are notified by the special message notifying section; and

a handover rearranging section for rearranging the connection status in such a manner that the desired call to continue which is designated in the reply received by the reply receiving section is maintained and an undesired call which is not selected by the first multicall

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communication mode supporting terminal is disconnected.

21. (previously presented) A switching center system comprising:

a determining section for determining whether a call request is a call from a first multicall communication mode supporting terminal, which is capable of supporting a plurality of calls at a time or from a single-call communication mode supporting terminal, which is capable of supporting only a single call at a time;

an event detecting section for detecting an event caused by a handover occurrence or fluctuation of a congested state; and

a call-number changing section capable of changing the number of continuing calls of the first multicall communication mode supporting terminal which is determined by the determining section, when an event is detected by the event detecting section during the communication,

wherein the call-number changing section comprises:

a call selecting section for selecting a call to be disconnected from the plurality of calls under communication based on a predetermined condition;

a call disconnect notifying section for transmitting a call disconnect message to the first multicall communication mode supporting terminal corresponding to the disconnected call selected by the call selecting section;

a reply receiving section capable of receiving a reply regarding a desired call to continue selected by the first multicall communication mode supporting terminal which received the disconnect message from the call disconnect notifying section; and

a handover rearranging section for maintaining connection corresponding to the desired call to continue which is designated by the reply received by the reply receiving section and disconnect an undesired call to continue selected from the plurality of calls by the first

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multicall communication mode supporting terminal.

22. (previously presented) A switching center system according to claim 21, wherein the call selecting section comprises:

a priority data holding section for giving priority data to the calls under communication and holding the priority data; and

an output section for outputting the data designating the call to be disconnected based on the priority data held by the priority data holding section when connection service restriction deriving from the event is relaxed.

23. (previously presented) A switching center system according to claim 21, wherein the call selecting section is arranged to disconnect based on information regarding priority of call contained in a predetermined region of the call disconnect message.

24. (previously presented) A switching center system according to claim 21, wherein the call selecting section is arranged to select a call based on information contained in the subscriber's data which is sent from a home location register to a visitor location register.

25. (currently amended) A switching center system according to claim 21, wherein the call selecting section is arranged to disconnect based on a selecting ~~algorithm~~ algorithm prepared for each subscriber.

26. (previously presented) A switching center system according to claim 25, wherein the selecting ~~algorithm~~ algorithm is arranged based on the priority which is determined in accordance

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with the connection sequence of a plurality of calls under communication.

27. (currently amended) A switching center system according to claim 25, wherein the selecting ~~algerism~~ algorithm is arranged based on quality of service data indicative of the grade of a transmitted signal, and the call selecting section selects a call to continue in accordance with the selecting ~~algerism~~ algorithm.

28. (previously presented) A switching center system according to claim 20, wherein the call-number changing information is arranged to make the first multicall communication mode supporting terminal emanate an alarming sound changing step by step so as to correspond to the status taken by the call-number changing information.

29. (withdrawn) A switching center system including (a1) a plurality of first multicall communication mode supporting terminals which are capable of supporting a plurality of calls at a time, (a2) a plurality of single-call communication mode supporting terminals which are capable of supporting only a single call at a time, and (a3) a plurality of base station controllers for controlling a base station, a base station controller of the switching center system comprising:

a holding section capable of holding a plurality of calls communicating with each of base stations located near the base station controller at a time;

a detecting section for detecting at least a status that a handover is requested and determining a status that at least one of the calls held by the holding section cannot be handled upon handover in the multicall communication mode based on the number of calls held by the holding section;

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a notifying section for transmitting a special message regarding the number of calls allowable to continue to the multicall communication mode supporting terminal which has generated a handover request detected by the detecting section;

a reply receiving section capable of receiving a reply designating a desired call to continue which the multicall communication mode supporting terminal selects from the plurality of calls notified by the notifying section; and

a transmitting section for transmitting data indicative of the desired call to continue which is designated by the message received by the reply receiving section, to a mobile-service switching center.

30. (withdrawn) A switching center system including (a1) a plurality of first multicall communication mode supporting terminals which are capable of supporting a plurality of calls at a time, (a2) a plurality of single-call communication mode supporting terminals which are capable of supporting only a single call at a time, and (a3) a plurality of base station controllers for controlling a base station, a first multicall communication mode supporting terminal of the switching center system comprising:

a receiving section for receiving a special message regarding the increases and decreases of a plurality of calls and extracting call-number change information from the special message;

a presenting section for displaying the plurality of calls under communication which are identified by the call-number changing information extracted by the receiving section, to the user of the multicall communication mode supporting terminal in a visual manner or an audible manner in accordance with the call-number change information extracted by the receiving section;

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an input section arranged to permit the user of the multical communication mode supporting terminal to carry out input operation for selecting a desired call to continue from the plurality of calls presented by the presenting section; and

transmitting section for transmitting information regarding the desired call to continue which is selected by the input section to a corresponding base station.

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OVERVIEW OF CLAIMED INVENTION

The presently claimed invention provides for a mobile-service switching center in a switching center system including a plurality of first multicall communication mode supporting terminals (capable of supporting a plurality of calls at a time) and a plurality of single-call communication mode supporting terminals (capable of supporting only a single call at a time), wherein the mobile-service switching center comprises a determining section, event detecting section, and a call-number changing section. The determining section determines whether a call request is a call from the first multicall communication mode supporting terminal or from the single-call communication mode supporting terminal. The event detecting section detects an event caused by a handover occurrence or fluctuation of a congested state of a network, by a reception of a handover requesting signal, or an increase of a load representing the congested state of the network. The call-number changing section increases or decreases to change the number of continuing calls of the first multicall communication mode supporting terminal which is determined by the determining section, when an event is detected by the event detecting section it detects any event during the communication.

In one embodiment, if the current maintained communications mode is requested to change into a single call communication mode or current settled number of calls are requested to reduce a number of calls less than the current continued number due to a change of communication environment, the present invention's network management side informs the subscriber of the requested change or the requested reduction of call-numbers so as to make the subscriber change the number of calls, or the network management side manages the relative

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priority of calls for each of the plurality of calls continued by the subscriber so as to make the subscriber select a desired call.

REJECTIONS UNDER 35 U.S.C. § 102(a)

Claims 1 and 19 stand rejected under 35 U.S.C. § 102(a) as being anticipated by Applicants' admitted prior art. To be properly rejected under 35 U.S.C. § 102(a), the single cited reference (or in this case the reference to applicants' admitted prior art) must teach all the limitations of the rejected claims. Applicants contend that applicants' admitted prior art neither anticipates nor renders obvious many of the limitations of independent claims 1 and 19.

Figures 29 and 30 of the application-as-filed describe the prior art. Specifically, figure 29 describes an example connection sequence of a "catch" phone, wherein a call is temporarily held at the switching center and the communication line settled between the mobile terminal and the switching center is not more than a single line. Figure 30 describes an example connection sequence of a multi-session (multicall) phone, wherein a plural number of communication lines are settled between a mobile terminal and the switching center.

On page 2 of the office action, the examiner cites page 5, lines 23-page 6, line 2 of the application-as-filed as anticipating the limitation of the determining section of independent claims 1 and 19. A closer reading of the citation, however, merely reveals how, during network congestion, in conventional multicall communication mode technology, the network side arbitrarily selects a call to be continued, while discarding others. Conspicuously absent in the citation, or the prior art in general, is a teaching or suggestion for a mobile-service switching center that determines if a call request from a multicall communication mode supporting terminal

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or a single-call communication mode supporting terminal. Applicants contend that the prior art mobile switching center lack the ability to discriminate between a multicall communication mode supporting terminal and a single-call communication mode supporting terminal. Hence, applicants' admitted prior art cannot anticipate or render obvious the limitation of the determining section, as per claims 1 and 19.

Additionally, on page 2 of the office action, the examiner cites page 5, lines 6-16 of the application-as-filed as anticipating the limitation of the event detecting section as per claims 1 and 19. A closer reading of the citation merely reveals how handover is performed in mobile communications system. However, conspicuously absent in the citation, or the prior art in general, is a teaching or suggestion for the detection of an event caused by a handover occurrence (i.e., by a reception of a handover requesting signal) or a fluctuation in the congested state of a network (i.e., an increase in the load representing the congested state of a network). Hence, applicants' admitted prior art cannot anticipate or render obvious the limitation of the event detecting section, as per claims 1 and 19.

Further, on pages 2-3 of the office action, the examiner cites page 6, lines 3-13 of the application-as-filed as anticipating the limitation of the call-number changing section as per claims 1 and 19. A closer reading of the citation merely reveals how, during a state of congestion, the prior art switching center automatically selects calls of higher priority over calls of lower priority. However, conspicuously absent in the citation, or the prior art in general, is a teaching or suggestion for increasing or decreasing (to change) the number of continuing calls of a multicall communication mode supporting terminal, which is determined by the determining section, when an event is detected by the event detecting section it detects any event during the

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communication. Hence, applicants' admitted prior art cannot anticipate or render obvious the limitation of the call number changing section, as per claims 1 and 19.

Hence, as applicants' admitted prior art fails to either anticipate or render obvious many of the limitations of independent claims 1 and 19, applicants respectfully request the examiner to withdraw the rejections with respect to independent claims 1 and 19.

SUMMARY


As has been detailed above, none of the references, cited or applied, provide for the specific claimed details of applicant's presently claimed invention, nor renders them obvious. It is believed that this case is in condition for allowance and reconsideration thereof and early issuance is respectfully requested.

This amendment is being filed with a petition for extension of time. The Commissioner is hereby authorized to charge the petition fee, as well as any deficiencies in the fees provided to Deposit Account No. 50-1290.

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If it is felt that an interview would expedite prosecution of this application, please do not
hesitate to contact applicant's representative at the below number.

Respectfully submitted,



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